material, a light beam going though at the optical axis center is longer than a light beam going through the periphery; therefore, effects of irradiation fluctuation on a glass material are easily generated. Thus, from the standpoint of efficiently controlling aberration fluctuation due to irradiation fluctuation, it is preferable that a fluorite glass material is used for lenses having a positive refractive power. Additionally, from a perspective of chromatic aberration correcting occurring due to the difference in the refractive index of fluorite, it is preferable that a fluorite glass material is used for lenses having a positive refractive power.

Page 8, line 19 - page 9, line 7, delete current paragraph and insert therefor:

Furthermore, in the projection optical system according to the above-mentioned aspect, it is preferable that the third lens group has at least one lens component formed of fluorite. A light beam which is diverged by the second lens group is converged by the third lens group, so each lens of the third lens group has a high irradiating energy density. This causes compaction, which is a type of irradiation fluctuation. If a fluorite glass material is used for the third lens group, an effect can be obtained which reduces the effect of this compaction. Furthermore, if a fluorite glass material is used for a glass material with thickness close to the point at which the irradiating energy density is focused, compaction can be further effectively corrected.

Page 20, line 15 - page 21, line 2, delete current paragraph and insert therefor:

Fig. 5 is a structural diagram of a projection exposure apparatus to which the projection optical system of the first or second embodiments is applied as a projection optical system PL. A mask (a reticle R) in which a predetermined pattern is formed is arranged on the reticle R surface of the projection optical system PL. A wafer W coated by a photoresist is arranged, as a workpiece, at the wafer W surface of the projection optical system PL. The reticle R is held on a reticle stage RS, and the wafer W is held on a wafer stage WS. Above the reticle R, an illumination optical system IS is arranged which includes the exposure light